REMARKS

Claims remaining in the present patent application are Claims 1-8. The Applicants respectfully request reconsideration of the above captioned patent application in view of the remarks presented herein.

Finality

The rejection states that Applicant's amendment necessitated the new grounds of rejection, and thus the current rejection is made final. Applicants traverse. The amendments made were of a clarifying nature, e.g., changing "control" to "for controlling said switch" and numbering inputs, substantially in response to Examiner's request. No additional structural elements or restrictions or any other changes to the scope of the recited claims were introduced as a result of the amendments.

In the "Response to Arguments" section, the rejection argues that "'control' and 'input' are patentably distinct because their plain meanings are quite different." The rejection's argument is not germane. The term "control" was used as an adjective in the original claim, which read "control input." The amended recitation is "input for controlling." Per the rejection's own supplied definition, the term "control" may mean "a device or mechanism used to

regulate or guide the operation of a machine, apparatus, or system." Thus, a "control input," as originally recited, is an input "used to regulate or guide the operation of a machine...." The present claimed limitation, "input for controlling" does not alter structural elements or restrictions or make any changes to the metes and bounds of the recited claims.

Applicants respectfully assert that a rejection should not be made final for "any" amendment. For example, MPEP § 706.07 cautions, "[b]efore final rejection is in order a clear issue should be developed between the examiner and applicant" and "present practice does not sanction hasty and ill-considered final rejections. The applicant who is seeking to define his or her invention in claims that will give him or her the patent protection to which he or she is justly entitled should receive the cooperation of the examiner to that end, and not be prematurely cut off in the prosecution of his or her application."

In view of the assertion that Applicants' amendment did not necessitate a new ground of rejection, Applicants respectfully request withdrawal of the finality of the present action because the amendments made by the Applicants did not alter the scope of the claims such that a new search would be warranted.

Drawings

The drawings are objected to under 37 CFR § 1.83(b) because they are allegedly incomplete. Applicants respectfully traverse. Applicants respectfully assert that the drawings, in a manner so as to be instructive, exhibit, in one or more views, the improved portion itself, disconnected from the old structure, and also in another view, so much only of the old structure as will suffice to show the connection of the invention therewith, as required by 37 CFR § 1.83(b).

In particular, Figure 3 illustrates:

a switch for regulating the substrate potential of an integrated circuit comprising:

a first input for controlling said switch coupled to a first N-well bias supply line;

a second input for controlling said switch coupled to a substrate bias supply line;

a first switched terminal of said switch coupled to a ground;

a second switched terminal of said switch coupled to said substrate bias supply line; and

an output terminal of said switch coupled to a P-type substrate.

Applicants respectfully assert that removing any of these elements would fail to illustrate necessary structures, as recited in the claims.

For example, Figure 3 illustrates a switch with five terminals, two n-wells, a ground reference, a substrate bias supply line and three bias supply lines.

Applicants respectfully assert that one embodiment in accordance with the present claimed invention may be interpreted as follows:

a switch (320) for regulating the substrate (305) potential of an integrated circuit comprising:

a first input (321) for controlling said switch (320) coupled to a first N-well bias supply line (V_{BBN1});

a second input (V_{BBP}) for controlling said switch (320) coupled to a substrate bias supply line (V_{BBP});

a first switched terminal of said switch (320) coupled to a ground (terminal coupled to ground);

a second switched terminal of said switch (320) coupled to said substrate bias supply line (V_{BBP}); and

an output terminal of said switch coupled to a P-type substrate (terminal coupled to substrate (305).

The rejection requests application to include in the drawings: "(1) first input, (2) second input, (3) first switched terminal and (4) second switched terminal." Applicants respectfully assert that all of these requested elements are already present in the drawings, e.g., in Figure 3. Moreover, the nature and function of these elements are described in the description of Figure 3, at page 6 line 11 *et. seq.* of the specification.

Applicants respectfully assert that the drawings fully comply with 37 CFR § 1.83(b), and respectfully solicit withdrawal of this objection.

35 USC § 112

Claims 1-8 are rejected under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicants traverse.

The rejection does not appreciate a distinction between terminals "for controlling" a switch, and terminals that are switched, e.g., responsive to such control inputs.

In the "Response to Arguments" section, the rejection argues that the 35 USC § 112, second paragraph rejection is not "the lack of distinction between 'switched terminal' and 'terminals for controlling' in general, but instead the lack of distinction between the two based on the Specification and the circumstance that they are both separately claimed."

Applicants respectfully traverse. As will be presented in the response to the USC § 103 rejection, the rejection repeatedly alleges that the same terminal(s) as taught by the Lai reference are both "switched terminals" and "terminals for controlling." As the terminals are in fact not taught by the cited reference as having both functions, Applicants respectfully reiterate that the rejection does not appreciate a distinction between terminals "for controlling" a switch, and terminals that are switched, e.g., responsive to such control inputs.

Applicants respectfully assert that the Lai reference teaches a distinction between "switched terminal" and "terminals for controlling."

Response to Arguments

In the "Response to Arguments" section, the rejection argues that "Applicant's second allegation fails to recognize that the very existence of a line

to N+ regions in an N-well constitutes to capability of supplying the substrate with a voltage."

Applicants traverse. Applicants respectfully assert that a N-well cannot physically supply a voltage to a P-type substrate. The rejection goes on to allege, "[t]hat a substrate is P-type rather than N-type is irrelevant...." Applicants traverse. Applicants respectfully assert that conductivity type matters, in marked contrast to the rejection's allegations.

In the "Response to Arguments" section, the rejection argues that "said p-type substrate... can be defined with portion 320 included therein." Applicants traverse. Lai teaches forming an n-well 312, and forming a p+ well 320 in n-well 312. Thus, heavily doped p+ well 320 is of substantially different doping than substrate 300, as well as being physically and electrically isolated from substrate 300. Redefining 320 to be part of the substrate is not only incompatible with the teachings of Lai, but such redefinition is inconsistent with the use of such terms by those of ordinary skill in the art.

In the "Response to Arguments" section, the rejection argues that "it is not at all implied by 'coupled to ground' that the ground potential is invariant...." However, Lai teaches coupling 372 to 374 when the switch 370 is "on," and thus any coupling of 372 and/or 374 to ground must also couple the

other terminal to ground, and couple all terminals, including the new ground terminal, to the high voltage node, and thus render Lai inoperative.

The rejection further argues that Mergens operates, thus the proposed modification would operate. Applicants respectfully traverse, as Mergens is open (switch off, no coupling to ground) during normal operation, and Lai is closed (switch on, but still no coupling to ground) during normal operation. Thus, Mergens and Lai are incompatible in operation. To add the additional coupling to ground to Lai, especially on the same one switch as required by the claimed limitations, must force a change in the principle of operation of Lai.

In the "Response to Arguments" section, the rejection argues that "cathode 360 supplies a substrate bias though region 324...." Applicants traverse. Terminal 360 is not a switched terminal, and thus fails to teach or suggest the claimed limitation "a second switched terminal of said switch coupled to said substrate bias supply line" as recited by Claim 1.

35 U.S.C. § 103

Claims 1-8 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Lai et al. (US 6,791,146, "Lai") and further in view of Mergens et al. (US 6,803,633, "Mergens"). Applicants have carefully reviewed the cited references and respectfully assert that embodiments of the present invention as recited in Claim 1-8 are patentable over Lai in view of Mergens.

The rejection proposes to modify Lai "to couple between supply line and ground" as allegedly taught by Mergens. Applicants respectfully assert that the rejection is very unclear as to the exact modification that it proposes. However, given that terminals 372 and 374 are the only switched terminals taught by Lai, the rejection appears to propose that one of these terminals be modified so as to be coupled to ground.

Applicants respectfully assert that any such coupling of Lai terminal 372 or 374 to ground would render Lai inoperative, and incapable of performing its intended purpose. For example, Lai teaches:

> In normal operation, the switch is of low impedance (the MOS transistor exhibits on state), and guard ring is short to anode or other high voltage node, such that the guard ring can collect electrons to enhance the power zapping immunity. (Summary)

Thus, Lai teaches that during normal operation, the switch is on and the guard ring (well 326) is shorted to high voltage. The rejection proposes to couple this guard ring to high voltage (as taught by Lai) as well as to ground, as proposed by the rejection. Applicants respectfully assert that such a short circuit between "high voltage" and ground would render Lai inoperative, likely resulting in physical damage to the circuit of Lai.

Per *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959), "if the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious."

As the proposed modification of Lai in view of Mergens renders Lai inoperative, the proposed combination fails to establish *prima facie* obviousness, Applicants respectfully assert that all claims rejected over Lai in view of Mergens overcome the rejections of record, and respectfully solicit allowance of Claims 1-8.

In addition with respect to the proposed modification of Lai in view of Mergens, the rejection alleges that "motivation at least derives from the advantage that the system can be switched off in a harmless and cost efficient voltage setting." Applicants respectfully traverse. Applicants do not find

Mergens to suggest a "system can be switched off in a harmless and cost efficient voltage setting." Moreover, the primary reference Lai teaches:

> In normal operation, the switch is of low impedance (the MOS transistor exhibits on state), and guard ring is short to anode or other high voltage node, such that the guard ring can collect electrons to enhance the power zapping immunity. Furthermore, during the ESD event, the switch is of high impedance (the MOS transistor exhibits off state), and guard ring is useless. Thus, the ESD performance will not be degraded. (Summary)

Thus, Lai teaches a system that turns on and off automatically, providing the alleged benefit without modification.

Per *In re Vaeck,* 947 F.2d 488, 493, 20 USPQ2d 1438, 1442 (Fed. Cir. 1991), "[A] proper analysis under § 103 requires, *inter alia,* consideration of... whether the prior art would have suggested to those of ordinary skill in the art that they should make the claimed composition or device, or carry out the claimed process." Regardless of the type of disclosure, the prior art must provide some motivation or suggestion to one of ordinary skill in the art to make the claimed invention in order to support a conclusion of obviousness.

As Lai provides the alleged benefit without modification, there can be no suggestion or motivation that the proposed modification improves upon the teachings of Lai. Appellants respectfully assert that the Examiner herein

clearly demonstrates impermissible hindsight to formulate a modification of disparate references guided solely by Applicants' disclosure and claims.

For this additional reason, Applicants respectfully assert that all claims rejected over Lai in view of Mergens overcome the rejections of record, and respectfully solicit allowance of Claims 1-8.

With respect to Claim 1, Applicants respectfully assert that Lai in view of Mergens fails to teach or suggest the claimed limitation "an output terminal of said switch coupled to a P-type substrate" as recited by Claim 1.

The rejection alleges that Lai's first terminal 372 suggests this instant limitation. Applicants respectfully traverse. While terminal 372 may be coupled to region of the first conductivity type 320, region 320 is not the recited "P-type substrate" as recited by Claim 1. For example, region 320 may be P type material, however, region 320 is not a substrate. Moreover, region 320 is physically separated and electrically isolated from substrate 300 as region "320 is formed within the first lightly doped well region 312" (column 4, lines 20-50). Thus, n-well region 312 isolates p-well region 320 from substrate 300.

Mergens is not alleged to correct this deficiency of Lai, and Applicants respectfully assert that Mergens is silent as to the claimed limitation "an output

terminal of said switch coupled to a P-type substrate" as recited by Claim 1. As neither Lai nor Mergens, alone or in combination, teach or suggest this instant limitation, the rejection fails to establish *prima facie* obviousness.

As the rejection fails to establish *prima facie* obviousness, Applicants respectfully assert that Claim 1 overcomes the rejections of record, and respectfully solicit allowance of this Claim.

In addition with respect to Claim 1, Applicants respectfully assert that Lai in view of Mergens fails to teach or suggest the claimed limitation "a first input for controlling said switch coupled to a first N-well bias supply line" as recited by Claim 1. Applicants respectfully note that the rejection fails to even allege that this limitation is suggested, as the rejection fails to address the limitation "for controlling said switch," improperly arguing a basis for rejection over the incomplete recitation "input."

Furthermore, herein, and repeatedly throughout the rejection, the rejection improperly addresses the claimed limitations of "input(s) for controlling said switch" as simply "inputs." Applicants respectfully assert that the claimed limitation of an "input for controlling said switch" is not equivalent to simply an "input."

Applicants respectfully assert that neither "first terminal 372" nor "second terminal 374" are inputs "for controlling said switch," as recited by Claim 1. In contrast, Lai teaches, "the function of the switch 370 is controlled by RC circuit (resistor-capacitor circuit) 380" (column 4 lines 20-50). Thus, the unlabeled wire between control circuit 380 and switch 370 is the only taught "input for controlling said switch."

Figure 4 teaches 370 as a MOS transistor, and the unlabeled wire as connected to the gate of the MOS. Thus, the unlabeled wire further does not couple to "first terminal 372" or "second terminal 374," as the gate of the MOS is electrically isolated from the source and drain, e.g., via gate insulation.

Mergens is not alleged to correct this deficiency of Lai, and Applicants respectfully assert that Mergens is silent as to the claimed limitation "a first input for controlling said switch coupled to a first N-well bias supply line" as recited by Claim 1. As neither Lai nor Mergens, alone or in combination, teach or suggest this instant limitation, the rejection fails to establish *prima facie* obviousness.

As the rejection fails to establish *prima facie* obviousness, Applicants respectfully assert that Claim 1 overcomes the rejections of record, and respectfully solicit allowance of this Claim.

Further with respect to Claim 1, Applicants respectfully assert that Lai in view of Mergens fails to teach or suggest the claimed limitation "a second input for controlling said switch" as recited by Claim 1. Applicants respectfully note that the rejection fails to even allege that this limitation is suggested, as the rejection fails to address the limitation "for controlling said switch," improperly arguing a basis for rejection over the incomplete recitation "input."

Applicants respectfully assert that, Lai teaches, "the function of the switch 370 is controlled by RC circuit (resistor-capacitor circuit) 380" (column 4 lines 20-50). Thus, the unlabeled wire between control circuit 380 and switch 370 is the single and only taught "input for controlling said switch."

As Lai teaches only one input for controlling a switch, Lai fails to teach a second input for controlling a switch, as recited by Claim 1.

Mergens is not alleged to correct this deficiency of Lai, and Applicants respectfully assert that Mergens is silent as to the claimed limitation "a second input for controlling said switch" as recited by Claim 1. As neither Lai nor Mergens, alone or in combination, teach or suggest this instant limitation, the rejection fails to establish *prima facie* obviousness.

As the rejection fails to establish *prima facie* obviousness, Applicants respectfully assert that Claim 1 overcomes the rejections of record, and respectfully solicit allowance of this Claim.

The rejection includes an allegation that Lai suggests "a first switched terminal coupled to control circuit." Applicants are confused by this statement, as no claim recites such an element. Never-the-less, Applicants respectfully assert that neither Lai nor Mergens, alone or in combination, suggest this element. For example, the only connection between control circuit 380 and switch 370 is not a switched terminal. As taught by Lai, control circuit 380 controls the function of switch 370. Thus, the wire between 380 and 370 is an input for controlling switch 370, in contrast to the rejection's allegation of being a switched terminal.

Still further with respect to Claim 1, Applicants respectfully assert that Lai in view of Mergens fails to teach or suggest the claimed limitation "a second switched terminal of said switch coupled to said substrate bias supply line" as recited by Claim 1. Applicants respectfully assert that no line taught by Lai couples switch 370 to substrate 300. Two wells coupled to switch 370 are of opposite conduction type to the substrate, e.g., n-wells 318 and 326, and hence cannot couple a bias voltage to the substrate. The third well, 320, is electrically isolated from substrate 300 by n-well 312, and therefore cannot couple a bias

voltage to the substrate. Thus, there is no bias supply line, and no line coupled to switch 370 is taught as coupled to a substrate bias supply line.

Mergens is not alleged to correct this deficiency of Lai, and Applicants respectfully assert that Mergens is silent as to the claimed limitation "a second switched terminal of said switch coupled to said substrate bias supply line" as recited by Claim 1. As neither Lai nor Mergens, alone or in combination, teach or suggest this instant limitation, the rejection fails to establish *prima facie* obviousness.

As the rejection fails to establish *prima facie* obviousness, Applicants respectfully assert that Claim 1 overcomes the rejections of record, and respectfully solicit allowance of this Claim.

Still yet further with respect to Claim 1, Applicants respectfully assert that Lai in view of Mergens fails to teach or suggest the claimed limitation "an output terminal of said switch coupled to a P-type substrate" as recited by Claim 1. As previously presented, Applicants respectfully assert that no line taught by Lai couples switch 370 to substrate 300. Well 320, is electrically isolated from substrate 300 by n-well 312, and therefore is not coupled to substrate 300.

Mergens is not alleged to correct this deficiency of Lai, and Applicants respectfully assert that Mergens is silent as to the claimed limitation "an output terminal of said switch coupled to a P-type substrate" as recited by Claim 1. As neither Lai nor Mergens, alone or in combination, teach or suggest this instant limitation, the rejection fails to establish *prima facie* obviousness.

As the rejection fails to establish *prima facie* obviousness, Applicants respectfully assert that Claim 1 overcomes the rejections of record, and respectfully solicit allowance of this Claim.

Applicants respectfully assert that Claims 2-8 overcome the rejections of record by virtue of their dependency, and respectfully solicit allowance of these Claims.

In addition with respect to Claim 2, Applicants respectfully assert that Lai in view of Mergens fails to teach or suggest the claimed limitation "wherein said switch is operable to electrically couple said P-type substrate to said ground when a bias voltage is present on said first N-well bias supply line" as recited by Claim 2. No only does Lai in view of Mergens fail to suggest any electrical coupling to a substrate as recited by Claim 2, Lai in view of Mergens fails to suggest the claimed control mechanism. The control line for controlling the operation of Lai switch 370 is not coupled to an N-well bias supply line.

Thus, at least these claimed elements are not taught or suggested by Lai in view of Mergens.

For these additional reasons, Applicants respectfully assert that Claim 2 overcomes the rejections of record, and respectfully solicit allowance of these Claims.

In addition with respect to Claim 3, Applicants respectfully assert that Lai in view of Mergens fails to teach or suggest the claimed limitation "wherein said switch is operable to electrically couple said P-type substrate to said substrate bias supply line when a substrate bias voltage is present on said substrate bias supply line" as recited by Claim 3. No only does Lai in view of Mergens fail to suggest <u>any</u> electrical coupling to a substrate as recited by Claim 3, Lai in view of Mergens fails to suggest the claimed control mechanism. The control line of Lai switch 370 is <u>not</u> coupled to a substrate bias supply line. Thus, at least these claimed elements are not taught or suggested by Lai in view of Mergens.

For these additional reasons, Applicants respectfully assert that Claim 3 overcomes the rejections of record, and respectfully solicit allowance of these Claims.

In addition with respect to Claim 4, Applicants respectfully assert that Lai in view of Mergens fails to teach or suggest the claimed limitation "[t]he switch of Claim 1, further comprising a third input for controlling said switch coupled to a second N-well bias supply line" as recited by Claim 4. As previously presented, Lai teaches one, and only one, "input for controlling said switch." As Lai only teaches one input for controlling a switch, Lai cannot and does not teach "a third input for controlling said switch" as recited by Claim 4.

For this additional reason, Applicants respectfully assert that Claim 4 overcomes the rejections of record, and respectfully solicit allowance of this Claim.

In addition with respect to Claim 5, Applicants respectfully assert that Lai in view of Mergens fails to teach or suggest the claimed limitation "wherein said switch is operable to electrically couple said P-type substrate to said ground when a bias voltage is present on said second N-well bias supply line" as recited by Claim 5. No only does Lai in view of Mergens fail to suggest any electrical coupling to a substrate as recited by Claim 5, Lai in view of Mergens fails to suggest the claimed control mechanism. The control line of Lai switch 370 is not coupled to an N-well bias supply line. Thus, at least these claimed elements are not taught or suggested by Lai in view of Mergens.

For these additional reasons, Applicants respectfully assert that Claim 5 overcomes the rejections of record, and respectfully solicit allowance of these Claims.

In addition with respect to Claim 6, Applicants respectfully assert that Lai in view of Mergens fails to teach or suggest the claimed limitation "wherein said switch is operable to electrically couple said P-type substrate to said substrate bias supply line when a substrate bias voltage is present on said substrate bias supply line" as recited by Claim 6. No only does Lai in view of Mergens fail to suggest any electrical coupling to a substrate as recited by Claim 6, Lai in view of Mergens fails to suggest the claimed control mechanism. The control line of Lai switch 370 is not coupled to a substrate bias supply line. Thus, at least these claimed elements are not taught or suggested by Lai in view of Mergens.

For these additional reasons, Applicants respectfully assert that Claim 6 overcomes the rejections of record, and respectfully solicit allowance of these Claims.

In addition with respect to Claim 7, Applicants respectfully assert that Lai in view of Mergens fails to teach or suggest the claimed limitation "wherein said switch is operable to electrically couple said P-type substrate to said

substrate bias supply line when a substrate bias voltage is present on said substrate bias supply line and there is no bias voltage present on said N-well bias line" as recited by Claim 7. No only does Lai in view of Mergens fail to suggest any electrical coupling to a substrate as recited by Claim 7, Lai in view of Mergens fails to suggest the claimed control mechanism. The control line of Lai switch 370 is not coupled to an N-well bias line. Thus, at least these claimed elements are not taught or suggested by Lai in view of Mergens.

For these additional reasons, Applicants respectfully assert that Claim 7 overcomes the rejections of record, and respectfully solicit allowance of these Claims.

In addition with respect to Claim 8, Applicants respectfully assert that Lai in view of Mergens fails to teach or suggest the claimed limitation "wherein said switch is operable to electrically couple said P-type substrate to said ground when a substrate bias voltage is present on said substrate bias supply line and there is no bias voltage present on said N-well bias line" as recited by Claim 8. No only does Lai in view of Mergens fail to suggest any electrical coupling to a substrate as recited by Claim 8, Lai in view of Mergens fails to suggest the claimed control mechanism. The control line of Lai switch 380 is not coupled to an N-well bias line. Thus, at least these claimed elements are not taught or suggested by Lai in view of Mergens.

For these additional reasons, Applicants respectfully assert that Claim 8 overcomes the rejections of record, and respectfully solicit allowance of these Claims.

In an alternative rejection, Claims 1-8 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Lai et al. (US 6,791,146, "Lai") and further in view of Mergens et al. (US 6,803,633, "Mergens"). Applicants have carefully reviewed the cited references and respectfully assert that embodiments of the present invention as recited in Claim 1-8 are patentable over Lai in view of Mergens.

In this alternative rejection, the rejection swaps the alleged roles of Lai 372 with 374. However, such substitution little alters Applicants arguments. For example, Lai still fails to teach any line coupled to a substrate, and neither 372 nor 374 are coupled to a substrate or a substrate bias supply line, as recited by Claim 1.

Consequently, Applicants respectfully assert that Claims 1-8 overcome the "alternative rejection" for similar rationales as previously presented, and respectfully solicit allowance of these Claims.

CONCLUSION

Claims remaining in the present patent application are Claims 1-8. The Applicants respectfully request reconsideration of the above captioned patent application in view of the remarks presented herein.

The Examiner is invited to contact Applicants' undersigned representative if the Examiner believes such action would expedite resolution of the present Application.

Respectfully submitted,

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